Appl. No.: 09/523,375
Reply to Office Action of December 31, 2003

Amendments to the Claims:

Please amend the claims as follows:

Claim 1 (Cancelled)

Claim 2 (Cancelled)

Claim 3 (Currently amended) A method for operating a resilient closed communication network comprising at least one communication ring, the method comprising the steps of:

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receiving a data packet from a first external network at a first distributing station connected to the resilient closed communication network;

identifying a second distributing station connected to the resilient closed communication network from which the data packet is to be forwarded to a second external network;

determining functioning routes from the first distributing station to the second distributing station within the resilient closed communication network;

selecting an optimal route among the functioning routes; and

sending the data packet from the first distributing station to the second distributing station using the optimal route;

~~The method according to claim 1,~~ wherein the selecting step includes the steps of:

calculating an available traffic volume for each of the functioning routes;

maintaining a distance table containing information necessary to determine an actual distance value for each of the functioning routes;

A1 Cont.

finding optimal route candidates, which are routes with the smallest actual distance value among the functioning routes with a positive available traffic volume if at least one functioning route has a positive available traffic volume, routes with the smallest actual distance value among the functioning routes with an available traffic volume of zero if the largest available traffic volume for the functioning routes is zero, or routes with the largest available traffic volume if all the functioning routes have a negative available traffic volume; and

choosing an optimal route from the optimal route candidates.

Claim 4 (Original) The method according to claim 3, wherein the choosing step uses a preference value to select an optimal route when there are at least two optimal route candidates.

Claim 5 (Original) The method according to claim 4, further comprising the step of prioritizing an order of sending the data packet when the optimal route has a

negative available traffic volume.

Claim 6 (Original) The method according to claim 5, wherein the prioritizing step uses information 10 contained in a transport layer of the data packet using an OSI model.

A1 Cont.

Claim 7 (Original) The method according to claim 3, further comprising the step of prioritizing an order of sending the data packet when the optimal route has a negative available traffic volume.

Claim 8 (Original) The method according to claim 7, wherein the prioritizing step uses information contained in a transport layer of the data packet using an OS1 model.

Claim 9 (Cancelled)

Claim 10 (Cancelled)

Claim 11 (Currently amended) <u>A method for operating a resilient closed communication network comprising at least one communication ring, the method comprising the steps of:</u>

receiving a data packet from a first external network at a first distributing station connected to the resilient closed communication network;

identifying a second distributing station connected to the resilient closed communication network from which the data packet is to be forwarded to a second external network;

determining functioning routes from the first distributing station to the second distributing station within the resilient closed communication network;

selecting an optimal route among the functioning routes;

sending the data packet from the first distributing station to the second distributing station using the optimal route;

~~The method according to claim 1, further comprising the steps of:~~

appending an identification number of the second distributing station to the data packet before it leaves the first distributing station;

receiving the data packet at a third distributing station from the first distributing station; and

forwarding the data packet to the second external network connected to the third distributing station after removing the identification number from the data packet, if the identification number of the third distributing station is the same as the identification number appended to the data packet, or otherwise forwarding the data packet to a fourth distributing station that is different from the first distributing station.

Claim 12 (Original) The method according to claim 11, wherein optimization factors including an available traffic volume, an actual distance value, and a preference value arc considered in the selecting step.

Claim 13 (Original) The method according to claim 11, wherein the selecting step includes the steps of:

A1 Cont.

calculating an available traffic volume for each of the functioning routes;

maintaining a distance table containing information necessary to determine an actual distance value for each of the functioning routes;

finding optimal route candidates, which are routes with the smallest actual distance value among the functioning routes with a positive available traffic volume if at least one of the functioning routes has a positive available traffic volume, routes with the smallest actual distance value among the functioning routes with an available traffic volume of zero if the largest available traffic volume for the functioning routes is zero, or routes with the largest available traffic volume if all the functioning routes have a negative available traffic volume; and choosing an optimal route from the optimal route candidates.

Claim 14 (Original) The method according to claim 13, wherein the choosing step uses a preference value to select an optimal route when there are at least two optimal

route candidates.

Claim 15 (Original) The method according to claim 14, further comprising the step of prioritizing an order of sending the data packet when the optimal route has a negative available traffic volume.

Claim 16 (Original) The method according to claim 15, wherein the prioritizing step uses information contained in a transport layer of the data packet using an OSI model.

Claim 17 (Original) The method according to claim 13, further comprising the step of prioritizing an order of sending the data packet when the optimal route has a negative available traffic volume.

Claim 18 (Original) The method according to claim 17, wherein the prioritizing step uses information contained in a transport layer of the data packet using an OSI model.

Claim 19 (Original) The method according to claim 11, wherein no segment of the at least one communication ring is used as a dedicated protection segment.

Claim 20 (Original) The method according to claim 11, wherein the at least one

communication ring is made of fiber optic cables.

Claim 21 (Original) The method according to claim 1, further comprising the steps of:

appending an identification number of the second distributing station and a route segment data specifying the optimal route to the data packet before it leaves the first distributing station;

receiving the data packet at a third distributing station from the first distributing station; and

forwarding the data packet to the second external network connected to the third distributing station after removing the identification number and the route segment data, if the identification number of the third distributing station is the same as the identification number appended to the data packet, or otherwise forwarding the data packet to a fourth distributing station that is different from the first distributing station using the route segment data.

A1 Cont.

Claim 22 (Original) The method according to claim 21, wherein the forwarding step further includes the steps of:

if the identification number of the third distributing station is different from the identification number appended to the data packet,

extracting a route segment number of the route segment data;

removing the route segment number obtained in the extracting step from the route segment data; and

forwarding the data packet to a fourth distributing station using a route segment with the route segment number obtained in the extracting step.

Claim 23 (Original) The method according to claim 21, wherein optimization factors including an available traffic volume, an actual distance value, and a preference value are considered in the selecting step.

Claim 24 (Original) The method according to claim 21, wherein the selecting step includes the steps of:

calculating an available traffic volume for each of the functioning routes; maintaining a distance table containing information necessary to determine an actual distance value for each of the functioning routes;

finding optimal route candidates, which are routes with the smallest actual distance value among the functioning routes with a positive available traffic volume if at least one of the functioning routes has a positive available traffic volume, routes with the smallest actual distance value among the functioning routes with an available traffic volume of zero if the largest available traffic volume for the functioning routes is zero,

or routes with the largest available traffic volume if all the functioning routes have a negative available traffic volume; and

choosing an optimal route from the optimal route candidates.

Claim 25 (Original) The method according to claim 24, wherein the choosing step uses a preference value to select an optimal route when there are at least two optimal route candidates.

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Claim 26 (Original) The method according to claim 25, further comprising the step of prioritizing an order of sending the data packet when the optimal route has a negative available traffic volume.

Claim 27 (Original) The method according to claim 26, wherein the prioritizing step uses information contained in a transport layer of the data packet using an OSI model.

Claim 28 (Original) The method according to claim 24, further comprising the step of prioritizing an order of sending the data packet when the optimal route has a negative available traffic volume.

Claim 29 (Original) The method according to claim 28, wherein the prioritizing step

uses information contained in a transport layer of the data packet using an OSI model.

Claim 30 (Original) The method according to claim 21, wherein no segment of the at least one communication ring is used as a dedicated protection segment.

Claim 31 (Original) The method according to claim 21, wherein the at least one communication ring is made of fiber optic cables.

A1 Cont.

Claim 32 (Original) A method of operating a resilient closed communication network comprising at least one communication ring, a first distributing station, and a second distributing station wherein the first and the second distributing stations are interconnected by the at least one communication ring and have a router and a packet distributor, the method comprising the steps of:

receiving a data packet from a first external network at a first router in the first distributing station;

forwarding the data packet from the first router to a first packet distributor in the first distributing station;

identifying a network address of a second router in the second distributing station from which the data packet is to be forwarded to a second external network;

determining an identification number of a second packet distributor in the

second distributing station;

appending the identification number of the second packet distributor to the data packet;

determining functioning routes from the first distributing station to the second distributing station within the resilient closed communication network;

selecting an optimal route among the functioning routes; and

sending the data packet from the first distributing station to the second distributing station using the optimal route.

Claim 33 (Original) The method according to claim 32, wherein optimization factors including an available traffic volume, an actual distance value, and a preference value are considered in the selecting step.

Claim 34 (Original) The method according to claim 32, wherein the selecting step includes the steps of:

calculating an available traffic volume for each of the functioning routes;

maintaining a distance table containing information necessary to determine an actual distance value for each of the functioning routes;

finding optimal route candidates, which are routes with the smallest actual distance value among the functioning routes with a positive available traffic volume if at

least one of the functioning routes has a positive available traffic volume, routes with the smallest actual distance value among the functioning routes with a traffic volume of zero if the largest available traffic volume of the functioning routes is zero, or routes with the largest available traffic volume if all the functioning routes have a negative available traffic volume; and

choosing an optimal route from the optimal route candidates.

Claim 35 (Original) The method according to claim 34, wherein the choosing step uses a preference value to select an optimal route when there are at least two optimal route candidates.

Claim 36 (Original) The method according to claim 35, further comprising the step of prioritizing an order of sending the data packet when the optimal route has a negative available traffic volume.

Claim 37 (Original) The method according to claim 36, wherein the prioritizing step uses information contained in a transport layer of the data packet using an OSI model.

Claim 38 (Original) The method according to claim 34, further comprising the step of prioritizing an order of sending the data packet when the optimal route has a

negative available traffic volume.

Claim 39 (Original) The method according to claim 38, wherein the prioritizing step uses information contained in a transport layer of the data packet using an OSI model.

Claim 40 (Original) The method according to claim 34, wherein no segment of the at least one communication ring is used as a dedicated protection segment.

A1 cont.

Claim 41 (Original) The method according to claim 34, wherein the at least one communication ring is made of fiber optic cables.

Claim 42 (Original) The method according to claim 32, further comprising the steps of:

receiving the data packet at a third packet distributor in a third distributing station from the first distributing station; and

forwarding the data packet to a third router in the third distributing station from the third packet distributor for sending to the second external network connected to the third distributing station after removing the identification number from the data packet, if the identification number of the third packet distributor is the same as the identification number appended to the data packet, or otherwise forwarding the data

packet to a fourth distributing station that is different from the first distributing station.

Claim 43 (Original) The method according to claim 42, wherein optimization factors including an available traffic volume, an actual distance value, and a preference value are considered in the selecting step.

A1 cont.

Claim 44 (Original) The method according to claim 42, wherein the selecting step includes the steps of:

calculating an available traffic volume for each of the functioning routes;

maintaining a distance table containing information necessary to determine an actual distance value for each of the functioning routes;

finding optimal route candidates, which are routes with the smallest actual distance-value among the functioning routes with a positive available traffic volume if at least one of the functioning routes has a positive available traffic volume, routes with the smallest actual distance value among the functioning routes with a traffic volume of zero if the largest available traffic volume of the functioning routes is zero, or routes with the largest available traffic volume if all the functioning routes have a negative available traffic volume; and

choosing an optimal route from the optimal route candidates.

Claim 45 (Original) The method according to claim 44, wherein the choosing step uses a preference value to select an optimal route when there are at least two optimal route candidates.

Claim 46 (Original) The method according to claim 45, further comprising the step of prioritizing an order of sending the data packet when the optimal route has a negative available traffic volume.

Claim 47 (Original) The method according to claim 46, wherein the prioritizing step uses information contained in a transport layer of the data packet using an OSI model.

Claim 48 (Original) The method according to claim 44, further comprising the step of prioritizing an order of sending the data packet when the optimal route has a negative available traffic volume.

Claim 49 (Original) The method according to claim 48, wherein the prioritizing step uses information contained in a transport layer of the data packet using an OSI model.

Claim 50 (Original) The method according to claim 42, wherein no segment of the at least one communication ring is used as a dedicated protection segment.

Claim 51 (Original) The method according to claim 42, wherein the at least one communication ring is made of fiber optic cables.

Claim 52 (Original) The method according to claim 32 further comprising the steps of:

appending a route segment data for the optimal route to the data packet before the data packet leaves the first packet distributor;

receiving the data packet at a third packet distributor in a third distributing station from the first distributing station; and

forwarding the data packet to a third router in the third distributing station from the third packet distributor for sending to the second external network connected to the third distributing station after removing the identification number and the route segment data, if the identification number of the third packet distributor is the same as the identification number appended to the data packet, or otherwise forwarding to a fourth distributing station that is different from the first distributing station using the route segment data.

Claim 53 (Original) The method according to claim 52, wherein optimization factors including an available traffic volume, an actual distance value, and a preference value are considered in the selecting step.

Claim 54 (Original) The method according to claim 52, wherein the selecting step includes the steps of:

calculating an available traffic volume for each of the functioning routes;

maintaining a distance table containing information necessary to determine an actual distance value for each of the functioning routes;

finding optimal route candidates, which are routes with the smallest actual distance value among the functioning routes with a positive available traffic volume if at least one of the functioning routes has a positive available traffic volume, routes with the smallest actual distance value among the functioning routes with a traffic volume of zero if the largest available traffic volume of the functioning routes is zero, or routes with the largest available traffic volume if all the functioning routes have a negative available traffic volume; and

choosing an optimal route from the optimal route candidates.

Claim 55 (Original) The method according to claim 54, wherein the choosing step uses a preference value to select an optimal route when there are at least two optimal route candidates.

Claim 56 (Original) The method according to claim 55, further comprising the step of prioritizing an order of sending the data packet when the optimal route has a

negative available traffic volume.

Claim 57 (Original) The method according to claim 56, wherein the prioritizing step uses information contained in a transport layer of the data packet using an OSI model.

Claim 58 (Original) The method according to claim 54, further comprising the step of prioritizing an order of sending the data packet when the optimal route has a negative available traffic volume.

A1 Cont.

Claim 59 (Original) The method according to claim 58, wherein the prioritizing step uses information contained in a transport layer of the data packet using an OSI model.

Claim 60 (Original) The method according to claim 52, wherein no segment of the at least one communication ring is used as a dedicated protection segment.

Claim 61 (Original) The method according to claim 52, wherein the at least one communication ring is made of fiber optic cables.

Claim 62 (Original) The method according to claim 52, wherein the forwarding step further comprises the steps of:

if the identification number of the third packet distributor is different from the identification number appended to the data packet,

extracting a route segment number from the route segment data;

removing the route segment number obtained in the extracting step from the routes segment data; and

forwarding the data packet to a fourth distributing station using a route segment with the route segment number obtained in the extracting step.

A1 Cont.

Claim 63 (Original) The method according to claim 32, wherein no segment of the at least one communication ring is used as a dedicated protection segment.

Claim 64 (Original) The method according to claim 32, wherein the at least one communication ring is made of fiber optic cables.

Claim 65 (Original) A resilient closed communication network comprising:

a first communication ring; and

at least two distributing stations interconnected by the first communication ring, each distributing station including:

means for receiving a data packet from an external network or from another distributing station in the resilient closed communication network;

means for identifying a destination distributing station for the data packet received from the external network;

means for appending the identification number for the destination distributing station to the data packet received from the external network;

means for determining functioning routes to the destination distributing station within the resilient closed communication network;

means for selecting an optimal route among the functioning routes; and

means for forwarding to the external network after removing the identification number from the data packet if the identification number of the distributing station is the same as the identification number appended to the data packet, or otherwise forwarding the data packet to a next distributing station based on the optimal route.

Claim 66 (Original) The resilient closed communication network according to claim 65, wherein the selecting means considers optimization factors including an available traffic volume. an actual distance value, and a preference value.

Claim 67 (Original) The resilient closed communication network according to claim 65, wherein the selecting means includes:

means for calculating an available traffic volume for each of the

functioning routes;

means for maintaining a distance table containing information necessary to determine an actual distance value for each of the functioning routes;

means for finding optimal route candidates, which are routes with the smallest actual distance value among the functioning routes with a positive available traffic volume if at least one of the functioning routes has a positive available traffic volume, routes with the smallest available traffic volume if the largest available traffic volume among the functioning routes is zero, or routes with the largest available traffic volume if all the functioning routes have a negative available traffic volume; and

means for choosing an optimal route from the optimal route candidates.

Claim 68 (Original) The resilient closed communication network according to claim 67, wherein the choosing means uses a preference value to choose an optimal route when there are at least two optimal route candidates.

Claim 69 (Original) The resilient closed communication network according to claim 68, wherein each distributing station further includes means for prioritizing an order of sending the data packet when the optimal routes has a negative available traffic volume.

Claim 70 (Original) The resilient closed communication network according to claim 69, wherein the prioritizing means uses information contained in a transport layer of the data packet using an OSI model.

Claim 71 (Original) The resilient closed communication network according to claim 67, wherein each distributing station further includes means tor prioritizing an order of sending the data packet when the optimal route has a negative available traffic volume.

A1 Cont.

Claim 72 (Original) The resilient closed communication network according to claim 71, wherein the prioritizing means uses information contained in a transport layer of the data packet using an OSI model.

Claim 73 (Original) The resilient closed communication network according to claim 67, wherein no segment of the first communication ring is used as a dedicated protection segment.

Claim 74 (Original) The resilient closed communication network according to claim 67, wherein the first communication ring is made of fiber optic cables.

Claim 75 (Original) The resilient closed communication network according to claim

65, wherein no segment of the first communication ring is used as a dedicated protection segment.

Claim 76 (Original) The resilient closed communication network according to claim 65, wherein the first communication ring is made of fiber optic cables.

A1 cont.

Claim 77 (Original) A resilient closed communication network comprising:

a first communication ring; and

at least two distributing stations interconnected by the first communication ring, each distributing station including:

means for receiving a data packet from an external network or from another distributing station in the resilient closed communication network;

means for identifying a destination distributing station for the data packet received from the external network;

means for appending the identification number for the destination distributing station to the data packet received from the external network;

means for determining functioning routes to the destination distributing station within the resilient closed communication network;

means for selecting an optimal route among the functioning routes;

means for appending a route segment data for the optimal route to the

data packet received from the external network, and

means for forwarding to the external network after removing the identification number and the route segment data from the data packet if the identification number of the distributing station is the same as the identification number appended to the data packet, or otherwise forwarding to a next distributing station using a route segment specified in the route segment data after updating the route segment data.

Claim 78 (Original) The resilient closed communication network according to claim 77, wherein the selecting means considers optimization factors including an available traffic volume, an actual distance value, and a preference value.

Claim 79 (Original) The resilient closed communication network according to claim 77, wherein the selecting means includes:

means for calculating an available traffic volume for each of the functioning routes;

means for maintaining a distance table containing information necessary to determine an actual distance value for each of the functioning routes;

means for finding optimal route candidates, which are routes with the smallest actual distance value among the functioning routes with a positive available

traffic volume if at least one of the functioning routes has a positive available traffic volume, routes with the smallest available traffic volume if the largest available traffic volume among the functioning routes is zero, or routes with the largest available traffic volume if all the functioning routes have a negative available traffic volume; and

means for choosing an optimal route from the optimal route candidates.

A1 Cont.

Claim 80 (Original) The resilient closed communication network according to claim 79, wherein the choosing means uses a preference value to choose an optimal route when there are at least two optimal route candidates.

Claim 81 (Original) The resilient closed communication network according to claim 80, wherein each distributing station further includes means for prioritizing an order of sending the data packet when the optimal routes has a negative available traffic volume.

Claim 82 (Original) The resilient closed communication network according to claim 81, wherein the prioritizing means uses information contained in a transport layer of the data packet using OSI model.

Claim 83 (Original) The resilient closed communication network according to claim

79, wherein each distributing station further includes means for prioritizing an order of sending the data packet when the optimal route has a negative available traffic volume.

Claim 84 (Original) The resilient closed communication network according to claim 83, wherein the prioritizing means uses information contained in a transport layer of the data packet using an OSI model.

A1 Cont.

Claim 85 (Original) The resilient closed communication network according to claim 79, wherein no segment of the first communication ring is used as a dedicated protection segment.

Claim 86 (Original) The resilient closed communication network according to claim 79, wherein the first communication ring is made of fiber optic cables.

Claim 87 (Original) The resilient closed communication network according to claim 77, wherein no segment of the first communication ring is used as a dedicated protection segment.

Claim 88 (Original) The resilient closed communication network according to claim 77, wherein the first communication ring is made of fiber optic cables.

Claim 89 (Original) A resilient closed communication network comprising: a first communication ring; and

at least two distributing stations interconnected by the first communication ring, each distributing station including:

a router capable of receiving a data packet from an external network connected to the distributing station and of forwarding the data packet to the external network connected to the distributing station; and

A1 Cont.

a packet distributor comprising:

means for receiving a data packet from the router in the same distributing station or from another distributing station in the resilient closed communication network;

means for identifying a network address of a destination router in the destination distributing station for the data packet received from the router in the same distributing station;

means for determining an identification number of a destination packet distributor in the destination distributing station;

means for appending the identification number of the destination packet distributor to the data packet received from the router in the same distributing station;

means for determining functioning routes to the destination distributing station within the resilient closed communication network;

means for selecting an optimal route among the functioning routes; and

means for forwarding the data packet to the router in the same distributing station after removing the identification number from the data packet if the identification number of the distributing station is the same as the identification number appended to the data packet, or otherwise forwarding the data packet to a next distributing station.

Claim 90 (Original) The resilient closed communication network according to claim 89, wherein the selecting means considers optimization factors including an available traffic volume, an actual distance value, and a preference value.

Claim 91 (Original) The resilient closed communication network according to claim 89, wherein the selecting means includes:

means for calculating available traffic volume for each of the functioning routes;

means for maintaining a distance table containing information necessary to determine an actual distance value for each of tho functioning routes;

means for finding optimal route candidates, which are routes with the smallest actual distance value among the functioning routes with a positive available traffic volume if at least one of the functioning routes has a positive available traffic

volume, routes with the smallest available traffic volume if the largest available traffic volume among the functioning routes is zero, or routes with the largest available traffic volume if all the functioning routes have a negative available traffic volume; and

means for choosing an optimal route from the optimal route candidates.

A1 Cont.

Claim 92 (Original) The resilient closed communication network according to claim 91, wherein the choosing means uses a preference value to select an optimal route when there are at least two optimal route candidates.

Claim 93 (Original) The resilient closed communication network according to claim 92, wherein each distributing station further includes means for prioritizing an order of sending the data packet when the optimal routes has a negative available traffic volume.

Claim 94 (Original) The resilient closed communication network according to claim 93, wherein the prioritizing means uses information contained in a transport layer of the data packet using an OSI model.

Claim 95 (Original) The resilient closed communication network according to claim 91, wherein each distributing station further includes means for prioritizing an order of

sending the data packet when the optimal routes has a negative available traffic volume.

Claim 96 (Original) The resilient closed communication network according to claim 95, wherein the prioritizing means uses information contained in a transport layer of the data packet using an OSI model.

Alt. Cont.

Claim 97 (Original) The resilient closed communication network according to claim 91, wherein no segment of the first communication ring is used as a dedicated protection segment.

Claim 98 (Original) The resilient closed communication network according to claim 91, wherein the first communication ring is made of fiber optic cables.

Claim 99 (Original) The resilient closed communication network according to claim 89, wherein no segment of the first communication ring is used as a dedicated protection segment.

Claim 100 (Original) The resilient closed communication network according to claim 89, wherein the first communication network according to claim 89, wherein the first

communication ring is made of fiber optic cables.

Claim 101 (Original) A resilient closed communication network comprising:

a first communication ring; and

at least two distributing stations interconnected by the first communication ring, each distributing station including:

a router capable of receiving a data packet from an external network connected to the distributing station and of forwarding the data packet to the external network connected to the distributing station; and

a packet distributor comprising:

means for receiving a data packet from the router in the same distributing station or from another distributing station in the resilient closed communication network;

means for identifying a network address of a destination router in the destination distributing station for the data packet received from the router in the same distributing station;

means for determining an identification number of a destination packet distributor in the destination distributing station;

means for appending the identification number of the destination packet distributor to the data packet received from the router in the same distributing station;

means for determining functioning routes to the destination distributing station within the resilient closed communication network;

means for selecting an optimal route among the functioning routes;

means for appending a route segment data for the optimal route to the data packet received from the router in the same distributing station; and

means for forwarding the data packet to the router in the same distributing station after removing the identification number and the route segment data from the data packet if the identification number of the distributing station is the same as the identification number appended to the data packet, or otherwise forwarding to a next distributing station using a route segment specified in the route segment data after updating the route segment data.

A1 cont.

Claim 102 (Original) The resilient closed communication network according to claim 101, wherein the selecting means considers optimization factors including an available traffic volume, an actual distance value, and a preference value.

Claim 103 (Original) The resilient closed communication network according to claim 101, wherein the selecting means includes:

means for calculating available traffic volume for each of the functioning routes;

means for maintaining a distance table containing information necessary to determine an actual distance value for each of the functioning routes;

means for finding optimal route candidates, which are routes with the smallest actual distance value among the functioning routes with a positive available traffic volume if at least one of the functioning routes has a positive available traffic volume, routes with the smallest available traffic volume if the largest available traffic volume among the functioning routes is zero, or routes with the largest available traffic volume if all the functioning routes have a negative available traffic volume; and

A1 Cont.

means for choosing an optimal route from the optimal route candidates.

Claim 104 (Original) The resilient closed communication network according to claim 103, wherein the choosing means uses a preference value to select an optimal route when there are at least two optimal route candidates.

Claim 105 (Original) The resilient closed communication network according to claim 104, wherein each distributing station further includes means for prioritizing an order of sending the data packet when the optimal routes has a negative available traffic volume.

Claim 106 (Original) The resilient closed communication network according to claim

105, wherein the prioritizing means uses information contained in a transport layer of the data packet using an OSI model.

Claim 107 (Original) The resilient closed communication network according to claim 103, wherein each distributing station further includes means for prioritizing an order of sending the data packet when the optimal routes has a negative available traffic volume.

Claim 108 (Original) The resilient closed communication network according to claim 107, wherein the prioritizing means uses information contained in a transport layer of the data packet using an OSI model.

Claim 109 (Original) The resilient closed communication network according to claim 103, wherein no segment of the first communication ring is used as a dedicated protection segment.

Claim 110 (Original) The resilient closed communication network according to claim 103, wherein the first communication ring is made of fiber optic cables.

Claim 111 (Original) The resilient closed communication network according to claim

101, wherein no segment of the first communication ring is used as a dedicated protection segment.

A1 Cont.

Claim 112 (Original) The resilient closed communication network according to claim 101, wherein the first communication ring is made of fiber optic cables.